Requirements Traceability Matrix

for

Payload Launch Control Simulator

Version 1.0

James Furtado

1. Purpose

This document links each requirement from the Software Requirements Specification (SRS) to the parts of the system that will implement it and the tests that will verify it. The goal is to make sure every requirement is handled and can be tested.

2. Traceability Matrix

Req ID	Requirement Description	Implementation Component	Test Case ID	Notes
FR-1	Allow operator to arm payload with UI	PayloadUI::armPayload()	TC-01	Command triggers state change
FR-2	Allow operator to issue a launch command	PayloadUI::launchPayload()	TC-02	Depends on safety check pass
FR-3	Block launch if safety conditions not met	SafetySystem::checkAllConditions()	TC-03	Safety violations block launch
FR-4	Display condition status	UIStatusPanel / UIUpdater	TC-04	
FR-5	Simulate environmental constraints	EnvironmentSimulator	TC-05	Environment impacts launch ability
FR-6	Update & display environmental values in real-time	UIUpdater::updateEnvironment()	TC-06	Syncs with backend simulation
FR-7	Log key launch actions & events (arming, launches, state changes)	Logger	TC-07	Console log output
FR-8	Reset to safe state after each launch or failed launch	SystemState::resetToSafe()	TC-08	
FR-9	Allow operator to manually reset simulation state	UI::resetSimulation()	TC-09	

NFR-1	Respond to commands within 200ms	Backend event loop	TC-10	Response time measured
NFR-2	Show real-time updates and safety checks	UIUpdater / Event system	TC-11	Visual update frequency should be quick
NFR-3	Simple & clear UI	UI Layout Diagram	TC-12	Manual testing to ensure this
NFR-4	Include automated tests for core functionality	TestSuite	TC-13	